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What is claimed is:

1. Apparatus for operating on a substrate comprising in combination:

P1
a) a reaction chamber,
b) first means for generating radiation,
c) second means for controlling the operation of said first means to cause it to generate and direct radiation into said reaction chamber,

P1
d) third means for supporting work to be operated on with radiation generated by said first means within said reaction chamber,

P1
e) fourth means for guiding and driving said work supporting means to move work supported by said third means with respect to radiation generated by said first means,

P1
f) fifth means including an automatic manipulator for handling work in movement to and from said third means to remove work which has been operated on with radiation generated by said ^{third} ~~third~~ means from said supporting means and to place work thereon, and

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P1
g) master control means for controlling the operation of said second, fourth and fifth means to controllably dispose work on said supporting means, controllably operate said first means to cause radiation generated thereby to intersect and operate on work supported by said third means and to automatically effect the removal of said work from said supporting means and replace same with new work to be operated on by radiation generated by said first means.

2. An apparatus in accordance with claim 1 wherein said automatic manipulator is located within said reaction chamber..

3. An apparatus in accordance with claim 1 wherein said automatic manipulator is located exterior of said reaction chamber.

4. An apparatus in accordance with claim 1, said chamber having an opening thereto, a door secured to said chamber for closing said opening, motor means for opening and closing said door, said motor means being controlled in its operation by said master control means.

5. An apparatus in accordance with claim 1 wherein said fourth means is operable to guide and drive said work supporting means in a plurality of directions, said master control means being operable to control said fourth means to cause work supported by said third means to be controllably driven in two axis movement within said reaction chamber to allow radiation generated by said first means to variably intersect work supported by said work supporting means.

a 6. An apparatus in accordance with claim ⁵~~1~~ wherein said first means is operable to generate a beam of radiation.

7. An apparatus in accordance with claim 5 wherein said first means is an electron gun.

3 8. An apparatus in accordance with claim 5 wherein said first means ^{includes} ~~is~~ a laser.

9. An apparatus in accordance with claim 1 wherein said first means is operable to generate and direct a plurality of radiation beams into said chamber.

10. An apparatus in accordance with claim 1 including means for feeding a material to be deposited on work supported by said third means to said reaction chamber, control means for said feeding means, said master control means being operable to control the operation of said latter control means to controllably feed material to said reaction chamber while controlling said second means.

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11. A method for operating on a substrate within a reaction chamber comprising:

- P1
- a) controllably disposing a substrate on a support within a reaction chamber so as to predeterminately locate said substrate on said support,
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- b) sealing said reaction chamber from the atmosphere,
- c) controllably generating a beam of radiation and directing said radiation beam along a select path through said reaction chamber to cause it to intersect a select portion of said substrate,
- P1
- d) automatically controlling the operation of said radiation beam to cause it perform a select radiant energy operation on said substrate,
- a P1 ✓
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- e) when said select operation on said substrate by said radiation has been completed, ~~automatically~~ controlling the operation of an automatic manipulator to cause it to remove said substrate from said support and to replace same with a new substrate to be operated on with radiation controllably generated and directed through said reaction chamber.

12. A method in accordance with claim 11 which includes effecting controlled relative scanning movement between said support and the means for generating said beam of radiation during the generation of said beam while said substrate is disposed on said support to cause said radiation beam to predeterminately scan said substrate and operate thereon.

13. A method in accordance with claim 12 wherein steps (a) to (e) are carried out under the control of a computer.

14. A method in accordance with claim 11 which includes controllably admitting a material to said reaction chamber and depositing same against a surface of said substrate intersected by said radiation beam.

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16. A method for operating on a substrate comprising the steps of:

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a) predeterminately relatively positioning a beam generating means and a substrate a distance apart with respect to each other with a select portion of the surface of said substrate located to be intersected by the beam of said beam generating means when generated thereby,

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b) generating a narrow beam of collimated radiation by energizing said beam generating means at an intensity which is sufficient to change the physical characteristics of a portion of the surface stratum of said substrate,

p1
c) effecting controlled relative scanning movement between said beam and said substrate while controlling the operation of said beam to cause said beam to change the physical characteristics of a select portion of the surface stratum of said substrate, and

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d) ~~automatically~~ controlling the operation of an automatic manipulator to remove said substrate from the vicinity of said beam after said change to said physical characteristics of said select portion of said substrate has been effected.
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17. A method in accordance with claim 16 wherein steps (a) to (d) are carried out under the control of an automatic computer.

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18. A method in accordance with claim 17 wherein steps (a) to (c) are carried out within a reaction chamber, further including operating said automatic computer to control the atmosphere within said reaction chamber.

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19. A method in accordance with claim 17 wherein said automatic manipulator is also controlled by said automatic computer to ~~predeterminately~~ ^{predeterminately} position said substrate relative to said beam generating means.

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